

A successful method of overwintering the larvae of Fox Moth *Macrothylacia rubi* (L.) (Lep.: Lasiocampidae)

One of the most rewarding experiences available to those who have an interest in Lepidoptera is to breed those species that are of interest to them. Many species of this order are, provided certain rules concerning hygiene, fresh food and good ventilation are followed, comparatively easy to rear from ovum through to adult. There are, however, certain species which have proved exceptionally difficult to rear, especially when the overwintering stage is a larva. Of these, possibly one of the most difficult to overwinter is the Fox Moth.

This moth is essentially a moorland species, although occasionally it may be found on the sand dunes of many coastal counties of Britain. In Northumberland, it occurs in both habitats, but it is most commonly found on Heather *Calluna vulgaris*-dominated moorland. During the early autumn of 2000, I came across several hundred larvae of this species whilst carrying out an invertebrate survey for the Ministry of Defence on their Otterburn Training Area.

Having attempted to rear this species on several occasions over the past forty years without any success whatsoever (all the larvae had shrivelled and died or had become infected with a white fungus which proved equally fatal), I determined to ascertain just what was available as a hibernating medium for these wild larvae, in the immediate vicinity of their foodplant. An extensive search beneath the heather only revealed a thick layer of *Sphagnum* moss growing on very wet peat. It was apparent that waterlogged peat would be unsuitable and, as I had never found larvae on the heather during the winter months, the obvious place had to be within the *Sphagnum* moss layer.

In order to verify this I obtained two large clumps of "leggy" heather, which I planted into two 12-inch (306 mm) diameter plastic buckets. A six-inch (153 mm) layer of *Sphagnum* moss was packed in between the top of each peat filled bucket and the underside of the heather. Wire frames supporting fine mesh nylon sleeves were placed over the foodplant and secured beneath the rims of the buckets. Fifty nearly full-grown Fox Moth larvae were divided equally between these cages.

The completed assemblies were then placed in an exposed situation in my garden where they would receive the full rigours of the winter. The larvae continued to feed until late September then, one by one, they disappeared from view. The winter of 2000-2001 was the worst experienced for several years locally with persistent rain, hail, sleet and snow.

In early April these Fox Moth larvae re-appeared and started basking in the spring sunshine. Although counting was somewhat difficult due to the vegetation in the cages, it appeared that all the larvae had come through without loss. By late April, they had pupated in dark silvery-grey cocoons, some of which were in the *Sphagnum* moss, with the remainder being in the heather. The cigar-shaped cocoons in most cases were twice the length of the resulting pupae, in some instances 2½ inches (63 mm) long and half an inch (13 mm) in diameter. Unlike some of the larger moorland moth species, the structure the cocoons was quite soft and fragile. Only one larva failed to make the transition to pupal form and died in the cocoon.

The problems associated with overwintering the larvae of this species are well known and several authors have commented upon this. J. E. Robson (1899. A Catalogue of the Lepidoptera of Northumberland, Durham and Newcastle upon Tyne. *Trans. nat. Hist. Soc. Northumberland, Durham & Newcastle-upon-Tyne* 12, pt.1) recommended collecting full-fed larvae in spring as overwintering them was so difficult. This problem was partially solved by G. Bolam (1925. The Lepidoptera of Northumberland & the Eastern Borders. *History of Berwick Naturalists Club* 25) who turned out larvae in the autumn onto the straw mulching on his Strawberry beds, collecting the larvae when they re-appeared in the spring. He did not, however, give any indication of how many larvae were turned out or indeed how many survived.

In all, forty-eight specimens emerged between 29 May and 5 June 2001. Of these 35 were female and 13 male. The colouration of both sexes was typical of local specimens with no variation at all. The male specimens had a wingspan which was remarkably consistent, ranging from 38-40 mm. The females on the other hand, showed considerable variation in wingspan, varying from 40 mm in the smallest specimen to 60 mm in the largest, measurements being made from wing tip to wing tip on set specimens. Surplus adult specimens were released on the site from where the larvae were originally obtained. The remaining single pupa proved to be parasitised; a male *Tachina grossa* (Dip.: Tachinidae) emerged in early July 2001.

It would appear that in order to be successful in rearing this, and perhaps other moorland species which overwinter in the larval stage, the natural conditions of the habitat be duplicated as closely as possible and that exposure to the elements during the winter is an essential requirement. Six larvae of the Ruby Tiger *Phragmatobia fuliginosa* (L.), a species which also over-winters as a larva, were also enclosed in the cages with the Fox Moth larvae. In early March 2001 these larvae re-appeared and started to feed up and by the end of the month had pupated. Six adults of ssp. *borealis* (Stdgr.), the local moorland form, emerged in May 2001.— HARRY T. EALES, 11 Ennerdale Terrace, Low Westwood, Co. Durham NE17 7PN.

Has the flight period of the common spring *Orthosia* species (Lep.: Noctuidae) changed?

Recent issues of this journal have carried a number of reports of unseasonal records of Common Quaker *Orthosia cerasi* (Fabr.) and Hebrew Character *O. gothica* (L.) amongst others. It is good to receive these, since it is judged important in these days of apparent climate change to place on record such observations of clearly relevant aspects of the natural world. With these records in mind, I wondered if there had, at the same time, been any discernible shift in the main flight period of these two species, or of that of any other common Spring noctuid moths.

My garden here in north-east Hertfordshire is the only site for which I have been able to run a trap on a more or less nightly basis throughout a period that includes all of the alleged flight period of these moths, for a substantial number of years that includes 2001 (the last year for which full records can yet be available). I moved here in 1987 and so my analysis involved the 14 years from 1988 to 2001 inclusive, except that in the late 1990s I was, for a variety of reasons, not able to run the trap at the appropriate time of year. The data are presented in Table 1.